

Prognostic markers of ovarian hyperstimulation syndrome in assisted reproductive technologies

S V Zhukovskaya (BY) [1], L F Mozheiko (BY) [2]

Context: The study was directed at improving early prognosis of ovarian hyperstimulation syndrome risks in assisted reproductive technologies minimizing by comparing prognostic criteria and establishing cutoff levels for the most reliable ones.

Objective: The aim of the research was to evaluate efficacy and reliability of early OHSS prediction based on laboratory parameters (anti-mullerian hormone, anti-TPO antibodies, and HOMA-IR), and establish their cutoff levels.

Methods: Prospective cohort study included 718 women that underwent IVF + ICSI and were divided in 2 groups depending on controlled ovarian stimulation protocols: 359 patients on COS with GnRH agonists (group 1), 359 patients on COS with GnRH antagonists (group 2).

Statistical evaluation: MedCalc, SPSS, Statistica 10.0

Patient(s): Groups didn't statistically differ in age, BMI, AMH, FSH, LH, insulin, glucose, HOMA-IR, TSH, and anti-TPO antibodies levels.

Intervention(s) IVF + ICSI was performed after complex examination according to the guidelines of the Ministry of Health of the Republic of Belarus. In both groups women had the following laboratory parameters measured before the start of COS: AMH, anti-TPO antibodies, and HOMA-IR. IVF + ICSI was performed routinely; all embryo transfers were carried out on blastocyst stage.

Main Outcome Measure(s) Pregnancy rate in group 1: 51.5%; in group 2: 56.5% (?21,2 2,03; p_{1,2} 0,15). OHSS rate in group 1: 16.7%; in group 2: 11.4% (?21,2 3,73; p_{1,2} 0,04). Embryo transfer cancellation rate due to OHSS in group 1: 16.7%; in group 2: 10.8% (?21,2 4,69; p_{1,2} 0,03).

Prognostic efficacy of OHSS risk factors was evaluated according to the ROC-curve analysis; cut-off levels established: AMH – 3.5 ng/ml (AUC 0.921, Se 93.3, Sp 84.9, significance level p <0,0001); anti-TPO antibodies – 360 IU/ml (AUC 0.953, Se 91.7, Sp 93.3, p <0,0001); HOMA-IR – 2.4 (AUC 0.924, Se 93.3, Sp 90.0, p <0,0001).

Result(s): AMH, anti-TPO antibodies, and HOMA-IR have high predictive properties for OHSS in assisted reproduction cycles. The exceeding of cut-off levels is associated with significant elevation of OHSS risk.

Conclusions: Patients at high risk of OHSS should undergo a controlled ovarian stimulation protocol with the use of GnRH-antagonists: it is as effective, yet significantly safer compared to the GnRH-agonists protocol: the OHSS rate and the rate of embryo transfer cancellation due to OHSS is statistically lower, while the pregnancy rate doesn't statistically differ.